

CHAPTER 9 ACCESS CATEGORY STANDARDS

9.1 PURPOSE AND USE

The number, spacing, type, and location of access and traffic signals have a direct and often significant effect on the capacity, speed, and safety of the highway. Access to the Functional Classification Network is controlled using a hierarchical five level category system. The design standards within each category are necessary to ensure that the highway will continue to function at the level (category) assigned. Each state highway segment is assigned a category as defined in Sections 9.3 to 9.7.

Traffic signals and their installation are guided by the *Manual on Uniform Traffic Control Devices* (MUTCD) and regulated by the DelDOT Traffic Section. DelDOT may at its discretion, grant an access to a State-maintained roadway, require design and operational modifications as it deems necessary, restrict one or more turning movements, or deny the access so long as such discretion does not violate relevant law.

The existing design of the highway is not required to meet the design standards of the assigned category at the time it is assigned. All new access permitting and other access design decisions shall meet the design standards in this chapter for the assigned category for the highway or segment of highway.

9.2 ENTRANCE POLICY

9.2.1 LOCATION OF ENTRANCES

Entrances shall be placed to provide safe access to the site while providing the least impact on the existing roadway system. Entrances shall be located to provide the required sight distance, in accordance with AASHTO Standards, where the highway alignment and profile are favorable, where there are no sharp curves or steep grades, and where sight distance in conjunction with the access is adequate for safe traffic operation.

If a proposed development has frontage on two roads, access shall be provided from the lower volume road. Considerations for the placement of entrances should include evaluation of sight distance, location of adjacent entrances, and distance from intersecting streets. Where feasible, entrances shall not be located within 40 feet of an intersection radius or on acceleration and deceleration lanes.

Site circulation should be designed to allow vehicles to easily enter the site not blocking entrances and not be impacted by traffic control devices or parking spaces.

Any site being considered by DelDOT for access on to a State-maintained roadway shall be evaluated to determine if it will also impact any other DelDOT programs. These programs include, but are not limited to, the Corridor Capacity Preservation Program (CCPP), the Capital Transportation Program, the

Transportation Enhancement (TE) Program, the Highway Safety Improvement Program (HSIP), Pavement Rehabilitation Program, and Community Transportation Fund Program. If a plan would have an affect on any of these programs, that fact may necessitate additional review by DelDOT and additional requirements may need to be met.

When feasible and practical, two adjacent commercial properties shall use a common ingress and egress from the public highway. The original property owner shall establish and record a cross access easement regarding the location and design of such ingress and egress prior to any sale or subdivision of land subject to the review and approval of DelDOT.

9.2.2 NUMBER AND ARRANGEMENT OF DRIVEWAYS

Spacing of residential access shall comply with the requirements outlined in Figure 9-1. If these minimum requirements cannot be met because of insufficient roadway frontage, then the applicant shall provide a combined access with the adjacent lot. Not more than two combined entrance and exit driveways on the

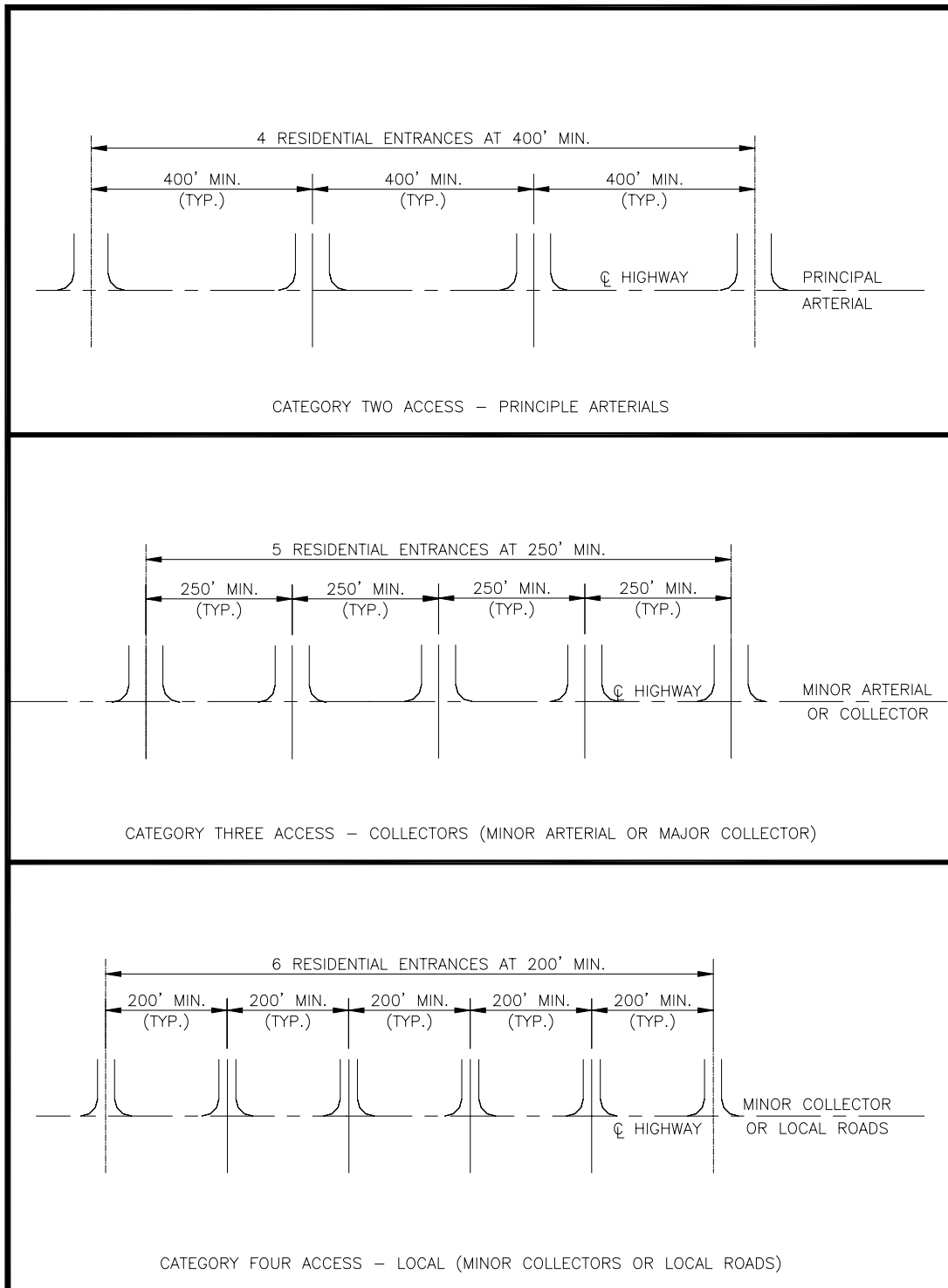
same highway shall be provided to any single property tract or business establishment.

DelDOT may consider an exception only where the frontage is 1000 feet or more. In such instances and where exceptions are requested by the developer, DelDOT shall study the proposed driveway design and parking arrangement to determine if any exception may be granted from an overall highway traffic operation and safety standpoint.

9.2.3 DEEDED ACCESS RIGHTS

Along some sections of State-maintained roadway, access rights have been obtained by DelDOT in the form of a recorded deed. Where access is controlled by deed there is no right of direct access through the deeded section. The property owner so affected may inquire with DelDOT about changes or purchase of any deeded access rights. The obtaining or revising of access rights by deed is regulated by the right-of-way acquisition process. Where access is not restricted by deed, an access permit consistent with the requirements of Standards and Regulations for Subdivision Streets and State Highway is still required for the construction and use of a driveway.

Figure 9-1 Spacing of Driveways and Entrances



9.3 CATEGORY ONE (INTERSTATE OR TOLL ROAD)

9.3.1 FUNCTIONAL CHARACTERISTICS

These highways have the capacity for high speed and high volume traffic movements over long distances in an efficient and safe manner, including interstate, interregional, intercity and, in larger urban areas, intra-city travel. Federal aid interstate highways are typical of this category.

9.3.2 DESIGN STANDARDS

All opposing traffic movements shall be separated by physical constraints such as grade separations and median separators. Access, consisting of directional ramps, shall be suitably spaced and designed to provide the minimum differential between the speed of the through traffic stream and the speed of the merging or diverging vehicles. Location and design of access shall be determined on an individual basis by DelDOT. Each access allowed to a Category One highway must receive the specific approval of the Chief Engineer and the FHWA. Access to interstate highways must comply with federal regulations. Temporary access may be allowed during official emergencies or where directly related to a freeway construction project.

9.4 CATEGORY TWO (ARTERIALS)

9.4.1 FUNCTIONAL CHARACTERISTICS

These highways have the capacity for high speed and high volume traffic movements in an efficient and safe manner, providing for

interstate, interregional, and intercity, travel needs and some intra-city travel needs. Direct access service to abutting land is subordinate to providing service to through traffic movements. Category Two is the highest category that permits at-grade intersections.

9.4.2 DESIGN STANDARDS

The design of Category Two highways should be capable of achieving a posted speed limit of 35 to 45 MPH where signals are present, and 45 to 55 MPH in rural areas. Typical spacing of intersecting streets, roads, and highways shall be planned at intervals of 2,500 feet. A minimum of 1,250 feet spacing should be permitted only when no reasonable alternative access to the street system exists.

Unless otherwise specifically categorized, all overpasses, underpasses, structures, ramps, and roadway sections between frontage roads and the main highway are Category Two.

Private direct access shall not be permitted unless the property retains deeded rights of access and the property has no other reasonable access to the street system.

All private direct access permitted shall be for right turns only unless:

1. The access does not have the potential for signalization, and
2. The distance required to execute a left turn or a U-turn would exceed one mile, and
3. A left turn movement can be designed that, in the opinion of DelDOT, meets all safety requirements.

No additional access shall be provided upon the splitting or dividing of existing parcels or contiguous parcels under the same ownership or control. All access to the newly created properties shall be provided internally from the existing access. Any new access determined by the permit application shall be consistent with the requirements of *Standards and Regulations for Subdivision Streets and State Highway Access*.

All access provided to a Category Two highway shall be done so with the understanding that if the highway is reconstructed to a Category One, alternative access may be provided by a frontage road or other means.

Opposing roadway traffic movements shall be separated by physical constraints such as grade separation or a median separator of sufficient design to physically prevent illegal movements.

Intersections with high traffic volumes should have either grade separations or interchanges.

Traffic signals should be programmed to allow speeds of 35 to 45 MPH. Signals at intersections with major cross streets may be programmed to optimize traffic on both streets equally. The efficiency of the signal system should be analyzed including volume, capacity, and level of service calculations.

9.4.2.1 Signal Spacing Criteria

The standard for the spacing of all intersecting State-maintained roadways and other accesses that are or may become signalized, shall be at 2,500 feet intervals, plus or minus 200 feet. For the purposes of achieving good arterial capacity and efficiency and to minimize delays to the traveling public the desirable bandwidth and efficiency for traffic signal progression is 80 percent and the minimum is 40 percent.

Exceptions to this 2,500 feet standard shall not be considered or permitted unless the proposal documents that there are no other reasonable alternatives to achieve a 2500 feet interval, there is a proven necessity for the intersection, and a study acceptable to DelDOT is completed. Topography and existing conditions may make 2,500 feet intervals inappropriate or not feasible. In that case, location of the access shall be determined with consideration given to topography, property ownership, unique physical limitations, unavoidable or pre-existing land use patterns and physical design constraints. The final

location should serve as many properties and interests as possible to reduce the need for additional direct access to the state highway.

9.4.2.2 Signalized Access Study Requirements

When a study is required, the study shall be completed and signed by a Delaware registered professional engineer using the following standards:

1. Evaluation of current traffic data and 20-year projections and any key year midpoints assuming development of the study area based upon zoning and comprehensive plans.
2. Highway signal progression bandwidth and efficiency analysis including current and anticipated future signalized intersections.
3. An optimum signal cycle as determined by DelDOT.
4. Actual speeds as determined by a spot speed study.
5. A highway bandwidth of 40 percent shall be used where conditions allow but no less than 30 percent bandwidth where existing or future locations may be at or below 30 percent.
6. The green time allowed for the cross street shall be no less than the time necessary to accommodate pedestrian movements.

The study shall also provide the following information:

1. Notation of all existing access, possible future access locations for at least one mile in each direction, and all potential roadway and signal improvements.
2. Current and future arterial travel speed, travel time, and delay time.
3. Traffic generation rate estimates.
4. Information, data and reference sources.
5. An evaluation of the level of service for all geometric elements.
6. Accurate and understandable diagrams.
7. All assumptions and adjustment factors.
8. An analysis of all reasonable alternatives including a no build alternative.

9. A safety analysis including conflict points and movements.
10. A conceptual design showing all geometric elements and approximate dimensions with detailed analysis of any elements below code standards.

Additional information and additional analysis based upon other factors and standards may be required if determined to be necessary for a complete evaluation.

Any access that would reduce the optimum highway bandwidth if a traffic signal were installed shall be limited to right turns unless it meets the three numbered requirements of Section 9.4.2.

9.5 CATEGORY THREE (COLLECTORS)

9.5.1 FUNCTIONAL CHARACTERISTICS

These highways have the capacity for medium to high travel speeds and high traffic volume over medium and long distances in an efficient and safe manner. They provide connections between arterials and local roads. Direct access service to abutting land is subordinate to providing service to through traffic movement.

9.5.2 DESIGN STANDARDS

The design of all Category Three highways should be capable of achieving a posted speed limit of 35 to 45 MPH on urbanized signalized segments and preferably 50 MPH in rural areas. A speed limit of 35 to 45 MPH in urbanized areas is acceptable where posted and there is little or no possibility of achieving higher speeds.

Private direct access to State-maintained roadways shall not be permitted when the property in question has other reasonable access

or reasonable opportunity to obtain other reasonable access to a lower functional roadway. If DelDOT determines that denial of direct access to the State-maintained roadway would cause unacceptable traffic operation or safety problems at the alternative access location(s) and to the overall traffic flow of the roadway system, or the proposed location is consistent with the spacing and public intersection requirements of this Section, direct access may be allowed. When direct access is to be allowed, such access shall continue until such time that some other reasonable access to a lower function category street or highway is available. No more than one such access shall be allowed to an individual parcel or to contiguous parcels under the same ownership. A combined driveway may be construed as a single access.

Where local regulations require a secondary access to provide for emergency services, DelDOT may allow an emergency access. Such an access shall not be open for non-emergency uses and shall be maintained by the permittee as a closed access except during emergencies.

When private direct access to a state-maintained roadway is allowed, it will generally be restricted to right turns only. One or both left turn movements may be permitted if the applicant establishes to DelDOT's satisfaction that:

1. The left turn movement would not create unreasonable congestion or safety problems or lower the level of service, and
2. Alternatives to the left turn would cause unacceptable traffic operation and safety problems on the street system, or
3. The access meets the signalization spacing requirements for intersecting public streets, roads and highways, and does not interfere with the location, planning, and operation of the street system and access to nearby properties.

A right turn movement may be restricted if, in the determination of DelDOT, the movement creates an operational problem or safety hazard.

Since intersecting public ways may in time warrant signalization, it is required that all

intersecting streets, roads and highways, that allow left turns meet the signal spacing criteria under Section 9.4.2.1. Those that do not meet these requirements shall be limited to right turns only, unless they meet the requirements of this Section.

No additional access rights shall accrue upon the splitting or dividing of existing parcels or contiguous parcels under the same ownership or control. All access to the newly created properties shall be provided internally from the existing access. Any new access determined by the permit application shall be consistent with the requirements of *Standards and Regulations for Subdivision Streets and State Highway Access*.

When an existing access meets the warrants for a traffic signal as defined in the MUTCD, and the location does not meet the requirements of Section 9.4.2.1, a median separator may be installed or the access designed to direct vehicles into right turns only. These design solutions may not be practicable or feasible where there are physical constraints such as curbs, sidewalks, structures, and lack of rights-of-way. The access may be required to be reconstructed, or relocated to conform to these *Standards and Regulations for Subdivision Streets and State Highway Access*.

9.5.2.1 Signal Spacing Criteria

The standard for the spacing of all intersecting State-maintained roadways and other accesses that are or may become signalized, shall be in accordance with Section 9.4.2.1.

9.5.2.2 Signalized Access Study Requirements

When a study is required, the study shall be completed and signed by a Delaware registered professional engineer in accordance with Section 9.4.2.2.

9.6 CATEGORY FOUR (LOCAL)

9.6.1 FUNCTIONAL CHARACTERISTICS

These highways have the capacity for moderate travel speeds and moderate traffic volumes over medium and short travel distances providing for intra-city and intercommunity travel needs. There is a reasonable balance between direct access and mobility needs within this category.

9.6.2 DESIGN STANDARDS

The design of all Category Four highways should be capable of achieving a posted speed limit of 30 to 45 MPH. The posted speed limit shall be used to meet the requirements of access to State-maintained roadways unless an approved plan or study shows improvements to the highway require a higher speed limit be used.

One access may be allowed from a State-maintained roadway to an individual parcel or to contiguous parcels under the same ownership or control where such access will not compromise the safety and operation of the highway. Additional access may be provided (see Section 7.2.3.1).

9.6.2.1 Signal Spacing Criteria

The standard for the spacing of all intersecting State-maintained roadways and other accesses that are or may become signalized, shall be in accordance with Section 9.4.2.1.

9.6.2.2 Signalized Access Study Requirements

When a study is required, the study shall be completed and signed by a Delaware registered professional engineer in accordance with Section 9.4.2.2.

9.7 CATEGORY FIVE (ACCESS)

be detrimental to the safety and operation of the highway.

9.7.1 FUNCTIONAL CHARACTERISTICS

Additional access may be allowed when DelDOT determines that:

Category Five shall be assigned only to roadways that are designed as frontage or service roads where there is no intended purpose of providing for long distance or high volume traffic movements. Access needs will take priority over through traffic movements without compromising safety or operation. Providing reasonable and safe access to abutting property is the primary purpose of this access category. At the request of the local land use agency or their designee, DelDOT may change any frontage or service a road to a higher category to support local transportation plans.

- There will not by any significant safety or operational problems created by the additional access, and
- Additional access would not cause a hardship to an adjacent property.

All turning movements, including left turns, may be allowed provided adequate safety and design standards are met.

The existing posted speed limit shall be used in any access permit and design decisions.

9.7.2 DESIGN STANDARDS

9.7.2.1 Signal Spacing Criteria

One direct access may be allowed from a State-maintained roadway to an individual parcel or to contiguous parcels under the same ownership or control where such access will not

Minimum spacing between signals shall be that which is necessary for the safe operation and proper design of adjacent accesses. Preference in traffic signal timing and operation shall be given to highways and cross streets of a higher access category or function.

Figure 9-2 Access Category Standards

	Functional Classification Roadway Association	Functional Characteristics	Design Standard	Access	Spacing
CATEGORY 1 INTERSTATES OR TOLL ROADS	<u>Urban System</u> <ul style="list-style-type: none">InterstateFreeways or Expressways <u>Rural System</u> <ul style="list-style-type: none">N/A	<ul style="list-style-type: none">Have capacity for high-speed high-volume traffic movements over long distances.Travel needs are interstate, interregional, or intercity.Capable of serving larger vehicles carrying all types of goods with heavier loads than permitted on lower class roadways.	All opposing traffic movements shall be separated by physical constraints such as grade separations and median separators.	<ul style="list-style-type: none">Limited access to intersecting state maintained roadways under strictly controlled conditions.Temporary access may be allowed during official emergencies or where directly related to a freeway construction project.Location and design of access shall be determined on an individual basis by DelDOT.	Access, consisting of directional ramps, shall be suitably spaced and designed to provide the minimum differential between the speed of the through traffic stream and the speed of the merging or diverging vehicles.
CATEGORY 2 ARTERIALS	<u>Urban System</u> <ul style="list-style-type: none">Principal Arterial <u>Rural System</u> <ul style="list-style-type: none">Principal Arterial	<ul style="list-style-type: none">These highways have the capacity for high speed and high volume traffic movements.Posted speed limit of 35 to 45 MPH where signals are present, and 45 to 55 MPH in rural areas.Travel needs are interstate, interregional, and intercity, travel needs and some intracity travel needs.Category Two is the highest category that permits at-grade intersections.	<ul style="list-style-type: none">Intersections with high traffic volumes should have either grade separations or interchanges.Traffic signals should be programmed to allow speeds of 35 to 45 MPH and a desirable bandwidth of at least 50 percent.	<ul style="list-style-type: none">Direct access and service to abutting land is subordinate to providing service to through movement.All private direct access permitted shall be for right turns only. Exceptions may be considered.	<ul style="list-style-type: none">Typical spacing of intersecting State-maintained roadways shall be planned on intervals of 2,500 feet. A minimum of 1,250 feet spacing may be permitted only when no reasonable alternative access to the street system exists.Spacing of accesses that do not warrant a signal shall comply with the requirements outlined in Figure 9-1. If these minimum requirements cannot be met, then the applicant shall provide a combined access with the adjacent lot.
CATEGORY 3 COLLECTORS	<u>Urban System</u> <ul style="list-style-type: none">Minor ArterialMajor Collector <u>Rural System</u> <ul style="list-style-type: none">Major Collector	<ul style="list-style-type: none">These highways have the capacity for medium to high travel speeds and high traffic volume over medium and long distances in an efficient and safe manner.Travel needs are regional, intercity, and intracity.	<ul style="list-style-type: none">Capable of achieving posted speed limit of 35 to 45 MPH on urbanized signalized segments and preferably 50 MPH in rural areas.See signal spacing criteria for detailed discussion associated with traffic signal spacing.	<ul style="list-style-type: none">Direct access service to abutting land is subordinate to providing service to through traffic movement.Private direct access to the state highway system shall not be permitted unless DelDOT determines its necessity. When it is allowed, it will generally be restricted to right turns only.Where local regulations require a secondary access to provide for emergency services, DelDOT may allow an emergency access.	<ul style="list-style-type: none">The standard for the spacing of all intersecting State-maintained roadways and other accesses that are or may become signalized, shall be at 2,500 feet intervals, plus or minus 200 feet. DelDOT may consider exceptions to this spacing, provided an Access Study is performed (see 9.4.2.2 Access Study Requirements).Spacing of accesses that do not warrant a signal shall comply with the requirements outlined in Figure 9-1. If these minimum requirements cannot be met, then the applicant shall provide a combined access with the adjacent lot.
CATEGORY 4 LOCAL	<u>Urban System</u> <ul style="list-style-type: none">Local <u>Rural System</u> <ul style="list-style-type: none">Minor CollectorLocal	<ul style="list-style-type: none">These highways have the capacity for moderate travel speeds and moderate traffic volumes.Travel is short and movement is to intersecting roadways, usually of the collector classification.Travel needs are intracity and intercommunity travel needs.	<ul style="list-style-type: none">Capable of achieving posted speed limit of 30 to 45 MPH.The posted speed limit shall be used to meet the requirements of access to State-maintained roadways unless an approved plan or study shows improvements to the highway require a higher speed limit be used.	One access may be allowed from a State-maintained roadway to an individual parcel or to contiguous parcels under the same ownership. Additional access may be provided.	<ul style="list-style-type: none">The standard for the spacing of all intersecting State-maintained roadways and other accesses that are or may become signalized, shall be at 2500 feet intervals, plus or minus approximately 200 feet. DelDOT may consider exceptions to this spacing, provided an Access Study is performed (see 9.4.2.2 Access Study Requirements).Spacing of accesses that do not warrant a signal shall comply with the requirements outlined in Figure 9-1. If these minimum requirements cannot be met, then the applicant shall provide a combined access with the adjacent lot.
CATEGORY 5 ACCESS	<u>Urban System</u> <ul style="list-style-type: none">N/A <u>Rural System</u> <ul style="list-style-type: none">N/A	<ul style="list-style-type: none">Access to frontage or service roads.There is no intended purpose of providing for long distance or high volume traffic movements.	<ul style="list-style-type: none">The existing posted speed limit shall be used in any access permit and design decisions.All turning movements including left turns may be allowed.Minimum spacing between signals shall be that which is necessary for the safe operation and proper design of adjacent accesses.	<ul style="list-style-type: none">Access needs will take priority over through traffic movements.One direct access may be allowed from a State-maintained roadway to an individual parcel or to contiguous parcels under the same ownership or control where such access will not be detrimental to the safety and operation of the highway.	No limit on spacing.